



## Case report

Fatal case of retropharyngeal abscess associated with Pott's disease<sup>☆</sup>

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## ARTICLE INFO

## Article history:

Received 12 January 2013

Received in revised form

3 May 2013

Accepted 16 June 2013

Available online 9 July 2013

## Keywords:

Natural death

Pathological asphyxia

Pott's disease

Retropharyngeal abscess

## ABSTRACT

Retropharyngeal abscess is a rare, deep seated infection of the neck that usually affects young children. Chronic retropharyngeal abscess is rare and results from tuberculosis of the spine. Such swelling in the neck gradually increases in size and is detected during the routine radiological screening for symptoms like pain, dysphagia, fever, dyspnoea, progressive inspiratory stridor (from laryngeal obstruction), neck hyperextension etc, but rarely leads to sudden death due to airway obstruction. Thus the forensic pathologist rarely comes across such type of cases. Present case concerns obstruction of upper airway by a large retropharyngeal cold abscess leading to death in a 13-year-old female child from a lower socio-economic family. The possible explanation for the progression and fatal outcome of such abscesses associated with the Pott's disease is being discussed in the light of available literature.

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## 1. Introduction

Retropharyngeal abscess, or abscess of the potential space, forms between the posterior pharyngeal wall and prevertebral fascia. Acute retropharyngeal abscess results from infection in the retropharyngeal lymph glands, most commonly affecting infants and children under age 2. Chronic retropharyngeal abscess may result from tuberculosis of the cervical spine and may occur at any age.<sup>1</sup> In the present report, we describe the presentation and fatal obstruction by retropharyngeal cold abscess associated with cervical Pott's disease.

In developing countries like India where Tuberculosis is endemic, one has to consider the atypical presentation of tuberculosis (viz. extra pulmonary and cold abscess). The pathogenesis is related to reactivation of hematogenous foci or may spread from adjacent paravertebral lymph nodes. Pott's disease is tuberculous vertebral osteomyelitis, which represents 11% of cases diagnosed with primary extrapulmonary tuberculosis (TB).<sup>2</sup> This often involves two or more adjacent vertebral bodies. Cervical spine (C-

spine) involvement is unusual and accounts for 1–3% of cases of Pott's disease.<sup>1</sup> During the course of such disease, instability of the C-spine is rare.<sup>3–5</sup> However, C-spine tuberculosis is associated with neurological complications and retropharyngeal cold abscess formation in about 40% and 57% of patients respectively.<sup>6,7</sup> Clinical features of retropharyngeal abscess include pain, dysphagia, fever and, when the abscess is located in the upper pharynx, nasal obstruction; with a low positioned abscess; dyspnoea, progressive inspiratory stridor (from laryngeal obstruction), neck hyperextension and, in children, drooling and muffled crying.<sup>8</sup>

A large abscess may follow one of the sequel- presses on the larynx leading to edema and narrowing of the inlet resulting in sudden death from pathological asphyxia, or may erode into major vessels or rupture into the air passage thereby causing aspiration and/or hemorrhage.

In chronic retropharyngeal abscess, primary treatment is incision and drainage. If diagnosed early, it can be effectively treated conservatively by anti-tuberculous drug therapy for one year and with a chin-to-occiput collar support.<sup>9</sup>

## 2. Case report

A 13 year old girl presented with sudden onset of cough and breathlessness on 12th may 2012. She was rushed to M S Ramaiah hospital, where she was declared brought dead. The body was subjected for autopsy at Dept of Forensic Medicine M.S.Ramaiah

<sup>☆</sup> There was no source of funding, no disclaimers, and the information has not been presented at any meeting.

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Fig. 1. Opening of the abscess cavity while removing the neck structures.

Medical College Bangalore on the same day. On further enquiry her father revealed that, she was suffering from low grade fever, anorexia, loss of weight, and restricted movement of neck since last few months but medical attention was not sought due to their low socioeconomic status.

The girl was of moderate built and was emaciated, Post mortem staining faintly present over back and it was not fixed. Rigor mortis was setting in. There was bluish discoloration of lips and nail beds. There were no injuries on the body.

Upon dissection of neck, a retropharyngeal abscess bulging and pushing the anterior neck structures forwards measuring 8 cm × 4 cm × 3 cm, at the level C<sub>5-6-7</sub> vertebra (Figs. 1 and 2) was



Fig. 2. Abscess cavity after draining the content.

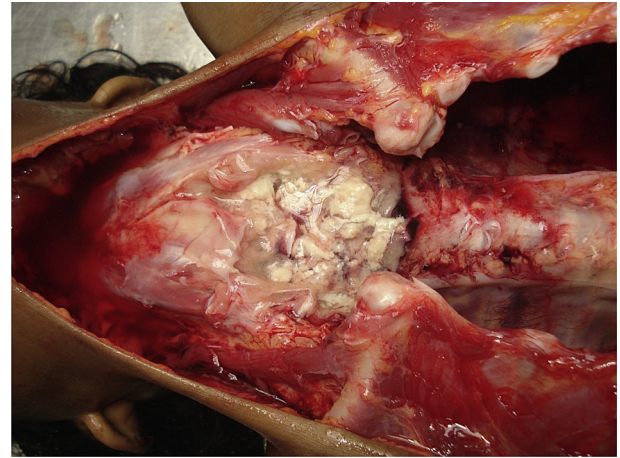


Fig. 3. Destruction of the bodies of cervical vertebrae (C 5, 6, 7).

observed. On incision it contained about 100 ml of white caseous necrotic material and underlying C6 vertebral body was destroyed (Fig. 3) exposing the meninges and spinal cord, Pre and paratracheal lymph nodes were enlarged (Fig. 4). Pleurae were adherent to the chest wall. Lungs were edematous and pale and a cut section of lungs showed multiple caseous necrotic areas. All other internal organs were intact and pale. Stomach contained 50 ml of clear fluid, with no unusual smell and mucosa was normal.

Histopathological examination revealed pulmonary tuberculosis and edema, the brain, spleen, liver and kidney showed congestion. Myocardium, coronary arteries and aorta were unremarkable. Vertebral body showed tuberculous osteomyelitis.

Microbiological study of abscess contents was done. Gram staining revealed numerous WBC'S, numerous gram negative bacilli occasional gram positive cocci in pairs.

ZN staining showed Acid fast bacilli (scanty- 3 bacilli).

Opinion as to cause of death was furnished as "Death is due to pathological asphyxia as a result of obstruction of upper respiratory tract by retropharyngeal abscess secondary to potts disease" [Natural death].

### 3. Discussion

Mycobacterium tuberculosis of the cervical spine is rare, but dangerous manifestation of extra-pulmonary tuberculosis.<sup>10</sup> Pott's disease, which represents 4.2% of extrapulmonary tuberculosis and 1.3% of all cases of tuberculosis, can also be observed in non

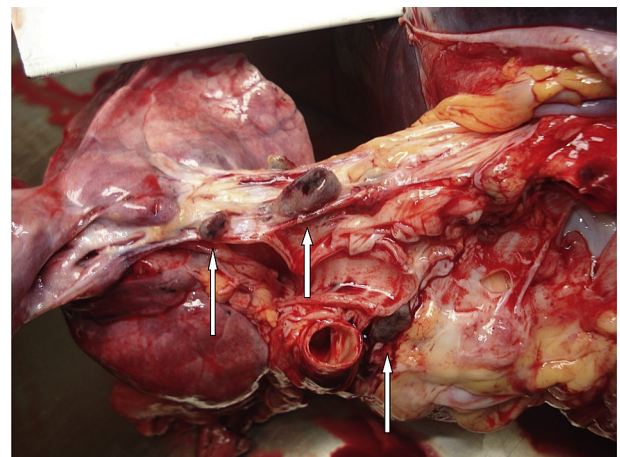


Fig. 4. Enlarged pre and para tracheal lymph nodes.

immunocompromised patients.<sup>11</sup> The clinical picture of Spinal TB (Pott's disease or tuberculous spondylitis) ranges from early, nonspecific, insidious symptoms to severe neurological complications and death. The average number of vertebrae involved is 2.6.<sup>12</sup> In the present case the girl had low grade fever and none of the pathognomic features of tuberculosis like cough, breathlessness etc were present hence the parents ignored her symptoms which ultimately led to the chronicity and fatal outcome. Prompt medical attention would have prevented such a catastrophe. A plain radiograph of the cervical spine to evaluate her complaint of neck pain would have revealed prevertebral bulging with vertebral destruction in the corresponding region.

In a study plain radiographs of the cervical spine in all showed prevertebral bulging of cervical spine greater than 7 mm at the C1–C2 region, with varying degrees of bone destruction.<sup>13</sup>

In another study lateral neck film showed widening of the prevertebral space and it became the most important diagnostic tool; computed tomography (CT) scan was used in 63 per cent of cases to verify the signs of an abscess and to provide more accurate anatomical localization.<sup>14</sup>

At autopsy a large cold abscess, pulmonary tuberculosis and signs of asphyxia were present. All other organs were intact and the same was confirmed by histopathological examination. There were no injuries on the body; there was no evidence of poisoning.

The cold abscess developed due to tuberculous osteomyelitis of cervical vertebrae (C5–7) (Figs. 1–3), which had gradually increased in size due to destruction of the vertebrae and accumulation of the necrotic material has caused progressive obstruction of the airway (Pathological asphyxia) resulting in death. Hence the cause of death was opined as “Death is due to pathological asphyxia as a result of obstruction of upper respiratory tract by retropharyngeal abscess secondary to Pott's disease” [Natural Death].

#### 4. Conclusion

In a developing country like India where Tuberculosis is endemic one has to keep in mind the possibility of cold abscess

even in the absence of classical features of pulmonary tuberculosis. Early diagnosis and treatment would prevent such fatalities.

#### Ethical approval

None.

#### Funding

None.

#### Conflict of interest

There are no conflicts of interests.

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